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10 CFR 50.59
10 CFR 50.90

RS-02-168

September 26, 2002

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Dresden Nuclear Power Station, Units 2 and 3
Facility Operating License Nos. DPR-19 and DPR-25
NRC Docket Nos. 50-237 and 50-249

Subject: Request for License Amendment Related to Heavy Loads Handling

- References:
- (1) Letter from J. S. Abel (Commonwealth Edison Company) to U. S. NRC, "Dresden Station Units 2 and 3, Quad Cities Station Units 1 and 2, Dresden Special Report No. 41, Quad Cities Special Report No. 16, 'Reactor Building Crane and Cask Yoke Assembly Modifications,' AEC Dckt. 50-237, 50-249, 50-254 and 50-265," dated November 8, 1974
 - (2) Letter from J. S. Abel (Commonwealth Edison Company) to U. S. NRC, "Dresden Station Units 2 and 3, Quad Cities Station Units 1 and 2, Dresden Special Report No. 41, Supplement A, Quad Cities Special Report No. 16 – Supplement A, 'Reactor Building Crane and Cask Yoke Assembly Modifications,' NRC Dckts. 50-237, 50-249, 50-254 and 50-265," dated June 3, 1975

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," and 10 CFR 50.59, "Changes, tests, and experiments," Exelon Generation Company (Exelon), LLC, is requesting changes to Facility Operating License Nos. DPR-19 and DPR-25, for Dresden Nuclear Power Station (DNPS), Units 2 and 3. The proposed changes will allow Exelon to use the Unit 2/3 reactor building crane during power operations to lift heavy loads in excess of 110 tons. Specifically, DNPS is requesting approval to revise the DNPS Updated Final Safety Analysis Report (UFSAR) to use the reactor building crane for heavy loads up to a total of 116 tons for removal and re-installation activities for six reactor shield blocks prior to and during the Unit 3 refueling outage. Reactor shield block removal activities are scheduled to commence on October 7, 2002.

In 1974, Commonwealth Edison (ComEd) Company, now Exelon, extensively modified the DNPS reactor building crane with the intent of qualifying the crane as single failure-proof for its full rated capacity of 125 tons. In support of a Technical Specifications amendment request to support spent fuel cask handling, we provided information regarding these modifications in References 1 and 2. In this information we stated that the fuel casks used would weigh up to 100 tons with a 10 ton lifting rig.

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In a teleconference with the NRC on September 20, 2002, the NRC stated that it considers the DNPS reactor building crane approved as meeting single failure-proof criteria only for loads of up to 110 tons. Subsequently, on September 21, 2002, DNPS determined that the reactor shield blocks, which are moved prior to and during the refueling outage, weigh greater than 110 tons. Since the crane is only approved as single failure-proof for loads of 110 tons, the proposed use of the crane for the activities described above could have the potential to create a new accident not analyzed in the UFSAR. This would require NRC approval in accordance with 10 CFR 50.59, "Changes, tests, and experiments." However, as stated in Attachment C, the proposed changes involve no significant hazards consideration.

The weight of the heaviest shield block, including rigging, does not exceed 116 tons. The reactor shield blocks are placed on the refuel floor of the operating unit (i.e., Unit 2). It would be impractical to conduct the refueling outage by placing the reactor shield blocks on the Unit 3 refuel floor. Thus, the requested amendment is needed to prevent a shutdown of Unit 2 to support D3R17. In addition, the requested amendment is needed to allow removal of Unit 3 reactor shield blocks during power operations.

In order to provide a long-term resolution for this issue, Exelon will complete additional analyses and submit a license amendment request related to heavy loads handling. In the interim, Exelon is requesting a one-time license amendment to allow use of the DNPS Unit 2/3 reactor building crane for lifting a total load of up to 116 tons. This will allow DNPS to perform required activities, such as reactor disassembly, for the upcoming Unit 3 refueling outage, D3R17.

Exelon is requesting approval of this amendment by noon on October 7, 2002, on an exigent basis in accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (a)(6). This request meets the criteria of 10 CFR 50.91 (a)(6) because time does not permit the NRC to publish a Federal Register notice allowing 30 days for prior public comment and the requested amendment involves no significant hazards consideration. As described in 10 CFR 50.91 (a)(6)(vi), the exigency could not be avoided by Exelon due to the circumstances described above.

This request is subdivided as follows.

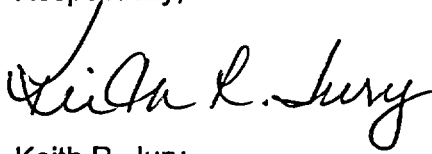
1. Attachment A gives a description and safety analysis of the proposed changes.
2. Attachment B provides the proposed revisions to the UFSAR.
3. Attachment C describes our evaluation performed using the criteria in 10 CFR 50.91(a), "Notice for public comment," paragraph (1), which provides information supporting a finding of no significant hazards consideration using the standards in 10 CFR 50.92, "Issuance of amendment," paragraph (c).
4. Attachment D provides information supporting an Environmental Assessment.

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These proposed changes have been reviewed by the DNPS Plant Operations Review Committee and approved by the Nuclear Safety Review Board in accordance with the requirements of the Exelon Quality Assurance Program.
Exelon is notifying the State of Illinois of this request for changes to the operating license by transmitting a copy of this letter and its attachments to the designated State Official.

Should you have any questions concerning this letter, please contact Mr. Allan R. Haeger at (630) 657-2807.

Respectfully,



Keith R. Jury
Director - Licensing
Mid-West Regional Operating Group

Attachments: Affidavit
Attachment A Description and Safety Analysis for Proposed Changes
Attachment B Proposed Revisions to the UFSAR
Attachment C Information Supporting a Finding of No Significant Hazards
Consideration
Attachment D Information Supporting an Environmental Assessment

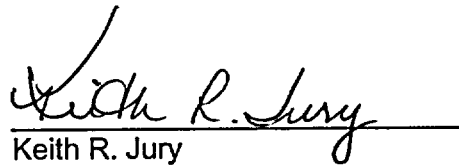
cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Dresden Nuclear Power Station
Office of Nuclear Facility Safety – Illinois Department of Nuclear Safety

STATE OF ILLINOIS)
COUNTY OF DUPAGE)
IN THE MATTER OF)
EXELON GENERATION COMPANY, LLC) Docket Numbers
DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3) 50-237 and 50-249

SUBJECT: Request for License Amendment Related to Heavy Loads Handling

AFFIDAVIT

I affirm that the content of this transmittal is true and correct to the best of my knowledge, information, and belief.


Keith R. Jury
Director - Licensing
Mid-West Regional Operating Group

Subscribed and sworn to before me, a Notary Public in and

for the State above named, this 26th day of

September, 2002




Notary Public

Attachment A

DESCRIPTION AND SAFETY ANALYSIS FOR PROPOSED CHANGES

A. SUMMARY OF THE PROPOSED CHANGES

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," and 10 CFR 50.59, "Changes, tests, and experiments," Exelon Generation Company (Exelon), LLC, is requesting changes to Facility Operating License Nos. DPR-19 and DPR-25, for Dresden Nuclear Power Station (DNPS), Units 2 and 3. The proposed changes will allow Exelon to use the Unit 2/3 reactor building crane during power operations to lift heavy loads in excess of 110 tons. Specifically, DNPS is requesting approval to revise the DNPS Updated Final Safety Analysis Report (UFSAR) to allow use of the crane for heavy loads up to a total of 116 tons for removal and installation activities for the six reactor shield blocks prior to and during the Unit 3 refueling outage. Reactor shield block removal activities are scheduled to commence at noon on October 7, 2002. The total lifting time of these reactor shield blocks for both removal and reinstallation activities is estimated to be less than 24 hours.

In 1974, Commonwealth Edison (ComEd) Company, now Exelon, extensively modified the DNPS reactor building crane with the intent of qualifying the crane as single failure-proof for the full rated capacity of 125 tons. In support of a Technical Specifications amendment request to support spent fuel cask handling, we provided information regarding these modifications in References 1 and 2. In this information we stated that the fuel casks used would weigh up to 100 tons with a 10 ton lifting rig.

In a teleconference with the NRC on September 20, 2002, the NRC stated that it considers the DNPS reactor building crane approved as meeting single failure-proof criteria only for loads of up to 110 tons. Subsequently, DNPS determined that the reactor shield blocks, which are moved prior to and during the refueling outage, weigh greater than 110 tons. The reactor shield blocks, plus required rigging, weigh less than 116 tons. The reactor shield blocks are placed on the refuel floor of the operating unit (i.e., Unit 2). It would be impractical to conduct the refueling outage by placing the reactor shield blocks on the Unit 3 refuel floor. Thus, the requested amendment is needed to prevent a shutdown of Unit 2 to support D3R17. In addition, the requested amendment is needed to allow removal of Unit 3 reactor shield blocks during power operations.

In order to provide a long-term resolution for this issue, Exelon will complete additional analyses and submit a license amendment request related to heavy loads handling. In the interim, Exelon is requesting a one-time license amendment to allow use of the DNPS Unit 2/3 reactor building crane for lifting a total load of up to 116 tons during power operation. This will allow DNPS to perform required activities, such as reactor disassembly, for the upcoming refueling outage, D3R17.

Exelon is requesting approval of this amendment on an exigent basis in accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (a)(6). This request meets the criteria of 10 CFR 50.91 (a)(6) because time does not permit the NRC to publish a Federal Register notice allowing 30 days for prior public comment and the requested amendment involves no significant hazards consideration. As described in 10 CFR 50.91 (a)(6)(vi), the exigency could not be avoided by Exelon due to the circumstances described above.

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DESCRIPTION AND SAFETY ANALYSIS FOR PROPOSED CHANGES

B. DESCRIPTION OF THE CURRENT REQUIREMENTS

Regulatory guidance provided in NRC Bulletin 96-02, "Movement of Heavy Loads Over Spent Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment," dated April 1996, provides that movement of heavy loads over spent fuel, fuel in the reactor core, or safety related equipment while the reactor is at power should be conducted in accordance with applicable regulatory requirements and within the guidelines of the current licensing basis. The current DNPS licensing basis credits the crane as single failure-proof for handling heavy loads. The DNPS reactor building crane has been approved by the NRC as meeting single failure-proof criteria for handling heavy loads of up to 110 tons.

C. BASES FOR THE CURRENT REQUIREMENTS

In NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," dated July 1980, the NRC provided regulatory guidelines in two phases (Phase I and II) to assure safe handling of heavy loads in areas where a load drop could impact stored spent fuel, fuel in the reactor core, or equipment that may be required to achieve safe shutdown or permit continued decay heat removal. Phase I guidelines address measures for reducing the likelihood of dropping heavy loads and provide criteria for establishing safe load paths, procedures for load handling operations, training of crane operators, design, testing, inspection, and maintenance of cranes and lifting devices, and analyses of the impact of heavy load drops. Phase II guidelines address alternatives for mitigating the consequences of heavy load drops, including using either (1) a single failure-proof crane for increased handling system reliability, or (2) electrical interlocks and mechanical stops for restricting crane travel, or (3) load drops and consequence analyses for assessing the impact of dropped loads on plant safety and operations. NUREG-0612, Appendix C provides alternative means of upgrading the reliability of the crane to satisfy the guidelines of NUREG-0554, "Single-Failure-Proof Cranes for Nuclear Power Plants."

Generic Letter (GL) 85-11, "Completion of Phase II of Control of Heavy Loads at Nuclear Power Plants, NUREG-0612," dated June 28, 1985, dismissed the need for licensees to implement the guidelines of NUREG-0612 Phase II based on the improvements obtained from the implementation of NUREG-0612 Phase I. GL 85-11, however, encouraged licensees to implement actions they perceived to be appropriate to provide adequate safety.

In NRC Bulletin 96-02, the NRC staff addressed specific instances of heavy load handling concerns and requested licensees to provide specific information detailing their extent of compliance with the guidelines and their licensing basis guidance and requested responses from licensees regarding heavy loads handling.

The DNPS response to Bulletin 96-02 was based on considering the reactor building crane as single failure-proof to 125 tons. This has precluded the need to complete load drop analyses or to restrict movement of heavy loads over safety-related equipment while the reactor is at power.

D. NEED FOR REVISION OF THE REQUIREMENTS

In a teleconference on September 20, 2002, the NRC stated that it has approved the DNPS Unit 2/3 reactor building crane as meeting single failure-proof criteria only for loads of up to

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110 tons. The current DNPS UFSAR does not consider any credible load drop accidents that result from handling reactor shield plugs with the DNPS Unit 2/3 reactor building crane over safety-related equipment while the reactor is at power. Thus, since the crane is only approved as single failure-proof for loads of up to 110 tons, the proposed use of the crane for the activities described above could have the potential to create a new accident not analyzed in the UFSAR. This would require NRC approval in accordance with 10 CFR 50.59, "Changes, tests, and experiments." However, as stated in Attachment C, we have concluded that the proposed changes involve no significant hazards consideration.

DNPS uses the reactor building crane for heavy loads to support refueling activities. The DNPS common refuel floor was originally designed to completely disassemble both Unit 2 and Unit 3 reactors simultaneously with all equipment stored within the boundaries of each unit. While this is an option for an emergency shutdown, eventual decommissioning or safe store operations, it is impractical for general refueling operations because of additional laydown space that is required to be utilized. Sharing of common equipment, such as the refuel bridges, decontamination pad and the equipment hatch is required. The amount of equipment and resources that will be needed during the refueling outage will require all available floor space. All laydown areas have been carefully orchestrated to allow free movement of refuel and specialty tooling as to not impede outage critical path activities and minimize crane moves because of large equipment obstructions. Utilizing all available refuel floor space optimizes time, which translates to increased safety due to less restrictive work areas and lower dose rates due to better as low as reasonably achievable (ALARA) practices.

Exelon is requesting this license amendment to allow DNPS to perform required activities as described above for its planned refueling outage. Since the reactor shield blocks are placed on the refuel floor of the operating unit (i.e., Unit 2), the requested amendment is needed to prevent a shutdown of Unit 2 to support D3R17. In addition, the requested amendment is needed to allow removal of Unit 3 reactor shield blocks during power operations.

E. DESCRIPTION OF THE PROPOSED CHANGES

Exelon is proposing to revise the DNPS UFSAR to allow use of the reactor building crane for lifting loads of up to 116 tons to support D3R17. A marked-up copy of the UFSAR has been provided as Attachment B, detailing these changes. The total lifting time of these reactor shields blocks for both removal and reinstallation activities is estimated to be less than 24 hours.

F. SAFETY ANALYSIS OF THE PROPOSED CHANGES

Exelon has concluded that the requested amendment is acceptable for the following reasons.

- The reactor building crane was modified with the intent of qualifying it as single failure-proof for 125 tons. The reactor building crane has additional capacity for a total lifted load of 116 tons with single failure-proof features if a Design Basis Earthquake (DBE) is not assumed.
- The probability of a DBE during the limited duration of the request is very small.

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DESCRIPTION AND SAFETY ANALYSIS FOR PROPOSED CHANGES

- An analysis will be performed which will demonstrate that no adverse consequences result from a postulated load drop.

Reactor building crane capacity

The stresses experienced by the DNPS reactor building crane were analyzed for the bridge, the trolley, and all of the major components listed in Attachment 1 of Reference 2. The various components have been designed with significant margin to the yield or ultimate strength of the material.

However, the licensing basis for this crane limits its load to 110 tons as a single failure-proof crane. If the DBE loads applied to the crane structures are removed from those structures (i.e., the bridge girders and the trolley), this results in a minimum increase of 10% in the load carrying capacity of these crane structures using the same allowables. This additional increase is more than enough to offset the lifted load increase of the crane to 116 tons.

A review of References 1 and 2 identifies that the factors of safety for the 125 ton reactor building crane single element components within the crane hoisting system load path and components critical to crane operations will increase by approximately 7% when the crane load is restricted to lifting 116 tons. Hence additional margin in the load carrying capacity of critical components will result.

The other features of the crane recognized by the NRC in approving the DNPS reactor building crane as single failure-proof are unaffected by this request. The crane hoist system consists of a dual load path through the hoist gear train, the reeving system, and the hoist load block along with restraints at critical points to provide load retention and minimization of uncontrolled motions of the load in the event of failure of any single hoist component. Redundancy has been designed into the hoist and trolley brakes and the crane control components.

Probability of a Design Basis Earthquake

Based on seismic estimates for the DNPS site that the NRC has published in NUREG-1488, "Revised Livermore Seismic Hazard Estimates for Sixty-Nine Nuclear Power Plant Sites East of the Rocky Mountains, 1994," the frequency of equaling or exceeding the DNPS DBE level is very low. Furthermore, as discussed above, the cumulative period of time required for the load lifts of concern is short (i.e., 24 hours). Therefore, the probability is very low that a DBE would occur during one of the load lifts.

Load drop analysis

To ensure that the consequences of a load drop are acceptable for the proposed amendment, a load drop analysis is being performed for the proposed movements of the reactor shield plugs. The load drop analysis approach being used meets the intent of the general considerations described in Section 1 of Appendix A to NUREG-0612. The movements of the shield blocks will be restricted to ensure the analysis assumptions are preserved and that no safety-related equipment will be impacted as a result of a postulated load drop. This analysis will be completed prior to lifting the Unit 3 reactor shield blocks.

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G. IMPACT ON PREVIOUS SUBMITTALS

Exelon has reviewed the proposed change and has determined that there is no impact on any previous license amendment request submittals awaiting NRC approval.

H. SCHEDULE REQUIREMENTS

We request approval of this license amendment by noon Central Daylight Time on October 7, 2002.

I. REFERENCES

1. Letter from J. S. Abel (Commonwealth Edison Company) to U. S. NRC, "Dresden Station Units 2 and 3, Quad Cities Station Units 1 and 2, Dresden Special Report No. 41, Quad Cities Special Report No. 16, 'Reactor Building Crane and Cask Yoke Assembly Modifications,' AEC Dckt. 50-237, 50-249, 50-254 and 50-265," dated November 8, 1974
2. Letter from J. S. Abel (Commonwealth Edison Company) to U. S. NRC, "Dresden Station Units 2 and 3, Quad Cities Station Units 1 and 2, Dresden Special Report No. 41, Supplement A, Quad Cities Special Report No. 16 – Supplement A, 'Reactor Building Crane and Cask Yoke Assembly Modifications,' NRC Dckts. 50-237, 50-249, 50-254 and 50-265," dated June 3, 1975